

- Fig. 16. *Diplograptus mucronatus*, Hall, with marginal fibres. Newham, near Lancefield.
- Fig. 17. *Diplograptus mucronatus*, Hall, with marginal fibres. Watchbox Ranges, near Baynton's.
- Fig. 18. *Diplograptus pristis*?, Hisinger. Newham, near Lancefield. The cellules are somewhat too distinctly represented in this figure.
- Fig. 19. *Didymograptus*? *fruticosus*, Hall. Castlemaine, county of Talbot. Three only of the four stipes are here seen.
- Fig. 20. *Didymograptus nitidus*, Hall. Castlemaine.
- Fig. 21. *Didymograptus Pantoni*?, M'Coy. Spring Plains, Redesdale. Showing the upper portion of two stipes.
- Fig. 22. *Didymograptus Pantoni*?, M'Coy. Spring Plains, Redesdale. Showing one stipe, and portion of the other, with radicle.
- Fig. 23. *Graptolithus latus*, M'Coy. Watchbox Ranges, near Baynton's.
- Fig. 24. *Graptolithus tenuis*?, Portlock. Newham, near Lancefield.

Note.—The figures are all drawn as near as possible to the natural size. I am much indebted to my friend Mr. B. N. Peach for his careful delineation of the specimens.

II.—*Amphipodous Crustacea. A new Species, and some Items of Description and Nomenclature.* By the Rev. T. R. R. STEBBING, M.A.

[Plates I. & II.]

*Liljeborgia Normanni*, n. sp. Pl. I. figs. 1, 1 a, 1 b, 1 c.

This species comes very near to *Liljeborgia shetlandica*, discovered by the Rev. A. M. Norman; and I have taken the liberty of naming it in honour of that very distinguished carcinologist. Both pairs of gnathopoda agree very closely with the figures and descriptions given by Bate and Westwood of those members in *L. shetlandica*. In the first pair, however, the finger of the new species is longer, and has a serrated edge; in the second pair the hand, instead of being only fringed with hair, is very prettily covered with it. The coxæ of the fifth and sixth pairs of legs are deeper than those figured for *L. shetlandica*; and the thighs of the fifth pair, instead of being equal to those of the sixth and seventh, are considerably smaller.

The lenses of the eyes are not numerous, though the eyes are large—which accords with the description given of the genus, though the eyes of *L. shetlandica* are stated to be small. The magnitude of the eyes is in many species of sessile-eyed Crustacea a very variable character.

The head has a rather deep slit below the lobe on which

the eye is situated; and the effect produced is that of a mouth with a curiously protruding chin below it.

The principal specific distinction consists in the ornamentation of the fourth and fifth segments of the pleon: the fourth has its hinder margin produced centrally into three sharp sub-equal teeth; the fifth has a pair of teeth at each side of its hinder margin. From each interval between two teeth, from the centre of the sixth segment, and from the two ends of the deeply cleft terminal tail-piece there is to be seen a conspicuously projecting seta or spine, those of the tail-piece in the same line with it, the others being directed upwards and outwards.

The specimen here described and figured was taken under a stone in Salcombe Harbour. Its colour was orange, mottled with rose-red; its length, not including the antennæ, three tenths of an inch; the inferior antennæ about half the length of the animal. Another specimen, taken subsequently with the dredge in the same locality, is evidently the female of this species, the only observable differences between the two specimens being that the latter has a pouch containing eggs, and the second pair of gnathopoda agreeing in shape with the first pair.

*Iphimedia Eblanæ*, variety. Pl. II. fig. 4.

The variety of this species now to be described was dredged in Torbay. My friend Mr. Arthur Hunt sent me, a few weeks back, a small pan of sea-water containing crabs and other marine animals. Among these, two minute crustaceans had been accidentally included, one of them being unmistakably *Iphimedia obesa*, the other apparently *Iphimedia Eblanæ*. The two differed in colour—the former being a speckled brown, much set off by the bright red eyes, while the latter was bright salmon-red of two shades mixed all over. This latter agrees with *I. Eblanæ* in the length of the first and last segments of the body, in having the thighs of the last two pairs of walking-legs produced posteriorly into two sharp points or teeth, in the strongly hooked character of the latero-dorsal teeth of the third segment of the pleon, and in the shape of the coxæ of the last three pairs of walking-legs. It differs, however, in the entire absence of the remarkable peculiarity assigned to *I. Eblanæ*, of having “the first three segments of the tail armed with a central dorsal tooth, directed posteriorly.” The thigh of the fifth pair of legs, moreover, is produced posteriorly into one point only, instead of into two.

The circumstances above mentioned under which the two Torbay specimens were obtained suggested the idea that they

might be sexes of one species. On the other hand, it should be mentioned that dredging in Salcombe Harbour yielded several specimens of *Iphimedia obesa* without one of *Iphimedia Eblanae*. *I. obesa* appears to be very variable, but always admirable, in colouring. Among the Salcombe specimens one was whitish, striped with rosy pink, another lemon-coloured, and several purplish grey, most charmingly relieved by scarlet eyes. Very minute hairs stand erect on the hard brittle skin of these portly and beautifully dressed little creatures. The colour of the eyes unfortunately fades rapidly.

*Microdeuteropus versiculatus* ♂. Pl. I. figs. 2, 2 a-2 f.

This hitherto unfigured form of *Microdeuteropus* (*Microdeutopus*, Bate and Westwood) was dredged in Salcombe Harbour; and I was at first tempted to make a new species of it, under the name of *Microdeuteropus crinitipes*, in allusion to the great beauty of the hairy gnathopoda. But, upon minute comparison, it appears to differ from the previously described *M. versiculatus*, along with which it was taken, only in the form of the first pair of legs, and is no doubt the male of that species. The Rev. Mr. Norman has, I find, already decided this in his report to the British Association in 1868 on the Shetland Crustacea. In that report he describes the first gnathopods, and states that the hand is at least as wide at the extremity as at the base, his specimens in this one particular appearing to differ from mine. The chief difference between the male and female forms is that in the former the wrist of the first pair of legs is more bulky, and armed at the infero-distal extremity with a strong tooth-like process curving slightly outwards. The hand is not nearly so large compared with the wrist as in the female; but in both the wrist is considerably larger than the hand. The palm is ill-defined; the finger is serrated on the inner edge, and is smaller than the finger in the female. The inner side of the wrist in both sexes is profusely adorned with hairs, the fringe consisting of several fine bundles or closely set brushes.

The second pair of legs are very peculiar; they appear to be exactly alike in both sexes, and have the meros, wrist, and hand all embellished with copious hairs of great length. Under the microscope these hairs are seen to be beautifully feathered. It is, of course, only when the creature is in liquid that these elegant appendages can be seen to full advantage. The wrist and hand are both of them long and slender, the wrist being the longer of the two and rather curiously curved; the meros is also long, closely adpressed to the wrist for about two thirds

of the length of the latter, where it terminates in a fine point. The hand, at least in dead specimens, is very much inclined to take a twist, so as not to lie in the same plane with the rest of the limb. This is also the case with the hand of the first pair in the male; and the peculiarity complicates the task of examination as well as that of drawing an exact profile.

As the specimen described in the 'British Sessile-eyed Crustacea' was imperfect, it may be well to add that the last pair of legs are (as is surmised in that valuable work, and in agreement with the description of the genus) much longer than the rest; while the inferior antennæ are the same as those of Messrs. Bate and Westwood's *Microdeutopus anomalus* (on the precise specific position of which as a female form Mr. Norman's very important paper above mentioned should be consulted), with a peduncle as long as that of the superior antennæ and a flagellum much shorter than the peduncle.

*Microtopus maculatus*, Norman. Pl. II. figs. 5, 5a, 5b.

This small Amphipod is described by the Rev. A. M. Norman in the 'Annals and Magazine' for December 1868. Mr. Norman, who established the genus in which it is placed, reports it as found among *Laminariæ* at Tobermory, in the Island of Mull, July 1866. I have obtained it plentifully, and of both sexes, this year as the result of dredging in Torbay. As only portions of the animal have been hitherto figured, it seems worth while to give a full-length portrait of it. It should also be noticed that the wrist in the second pair of gnathopods is much broader than would appear from the figure appended to Mr. Norman's description. It receives the hand into a sort of cup or segment of a cup. When the hand is viewed on the inner side, the cup-shape of the wrist is not apparent, while the huge finger also obscures the tooth-like processes of the hand, with the exception of a portion of the largest process. The thigh seems to be deeply grooved lengthwise in a line with the back of the hand. The wrist of the female has been already fully described by Mr. Norman as "very short, broader than long, and somewhat cup-shaped, the infero-posteal angle being projected into a rounded lobe."

*Gammarella brevicaudata* and *Gammarella (brevicaudata) ♀*  
*Normanni*. Pl. II. figs. 3, 3a-3g.

There can be no doubt that the above-mentioned names have been assigned to the male and female of a single species. Messrs. Bate and Westwood express their suspicion that this

would prove to be the case. I first took the female at Anstis Cove, Torquay, on the 21st of March last, under a stone at extreme low-water mark, in company with *Janira maculosa*. Since then I have taken both forms in companionship, and again, along with *Janira maculosa*, under similar circumstances in Salcombe Harbour. They have probably often been seen before, but mistaken for the young of the everywhere abundant *Gammarus locusta*. The shortness of the tail is an obvious distinction; but, as the creature when alive keeps it for the most part curled under its body, it is not such a telltale as it might otherwise be.

The difference in the length of the flagellum of the superior antennæ, noted by Bate and Westwood as one of the chief distinctions, was merely an accidental variation in their specimens. The length of this appendage undoubtedly varies in both forms, as it does in many other species of sessile-eyed crustaceans—so as to make it a very unsafe character on which to ground a specific difference, unless a large number of individuals have been examined and found constant in this feature\*.

The only difference of importance between the two forms is in the second pair of gnathopoda. In the male the hand is very large, long, and oval, with a short cup-shaped wrist, and having the palm fringed with ten or a dozen thorn-like bristles, along the inner side of which lies the strong and long finger, tapering almost to the extremity of the palm. The length of the finger, however, is somewhat variable. The corresponding pair of legs in the female have the wrist and hand long and narrow, slightly pubescent, of nearly the same length and breadth, and terminating in an inconspicuous finger. The first pair of legs are very similar to the second, but have the hand shorter than the wrist; they do not seem to differ at all from the first pair of legs of the male.

The coxæ of the first three pairs of legs have a small tooth at the postero-inferior margin, not particularly easy to observe. The thighs of the last three pairs, and especially of the last pair, are serrated in a very conspicuous manner: those of the last pair differ slightly in the male and female—the male having the posterior margin almost in a single curve, with a

\* Thus in *Ampelisca carinata*, Bruzelius (*Ampelisca Gaimardii* of Bate and Westwood), the inferior antennæ are stated by the latter authors to be two thirds the length of the animal: and so they sometimes are; but Mr. Norman speaks of the Scotch specimens as having the inferior antennæ "extremely long, equalling the whole length of the animal," and I have two fine specimens from Salcombe in which they are longer than the animal.

scarcely perceptible indentation; while in the female the large bulge of the thigh is contracted rather suddenly by a forward curve.

It remains only to notice that the sixth pair of legs are rather longer than the fifth and seventh pairs, and that the lobe of the head on which the eyes are situated is not curvilinear, but angular, and has a slight incision below it. These details, as well as the elevation of the fourth segment of the pleon, are common to both sexes. For other points the reader may be referred to the standard authorities.

#### EXPLANATION OF THE PLATES.

##### PLATE I.

- Fig. 1. Liljeborgia Normanni.* 1a. First gnathopod. 1b. Second gnathopod. 1c. Terminal segments of pleon, seen from above.  
*Fig. 2. Microdeuteropus versiculatus*, male. 2a. First gnathopod, with the hand twisted and foreshortened, more enlarged than the following figure. 2b. First and second gnathopods of another specimen. 2c. Second gnathopod of the same, seen from the opposite side. 2d. First gnathopod of female. 2e. Second gnathopod of female. 2f. Hairs of second gnathopods.

##### PLATE II.

- Fig. 3. Gammarella brevicaudata (G. Normanni)* female. 3a. First gnathopod. 3b. Second gnathopod. 3c. First and second gnathopods of male. 3d. Second gnathopod of another specimen, with a shorter finger. 3e. Maxilliped. 3f. Length of male. 3g. Length of female.  
*Fig. 4. Iphimedia Eblanæ*, variety.  
*Fig. 5. Microprotopus maculatus*, male. 5a. First gnathopod. 5b. Second gnathopod.

III.—On *Callisoma Branickii*, a new Species from Nice.  
 By AUGUSTUS WRZEŚNIEWSKI, Professor of Zoology in the Warsaw University.

To the Editors of the *Annals and Magazine of Natural History*.

GENTLEMEN,

You would greatly oblige me by publishing in your valuable Journal, as soon as possible, a brief description of a new species of the Amphipodous genus *Callisoma*, Costa.

I am, Gentlemen, Yours truly,

Warsaw, May 28, 1874.

A. WRZEŚNIEWSKI.

*Callisoma Branickii*, n. sp.

The head small; the eyes compound, elliptic. Inferior